

REMARKS

Filed as separate documents herewith are replacement sheets of drawings for FIGS. 2-6, 11, and 15-21 (labeled "Replacement Sheet") and a substitute specification. A clean version of the specification and a marked version to show the changes made are being submitted. Among other things, certain reference numbers have been changed and minor corrections have been made to improve the clarity of the disclosure. In addition, the working nozzle outer surface 35 and the working nozzle inner surface 33 have been given reference numbers. Applicants submit that no new matter is being introduced as a result of these amendments. Applicants further submit that examples of the working nozzle outer surface and working nozzle inner surface, as recited in some of the claims, were clearly illustrated in the original drawings.

Claims 52-57, 60-77, and 79-89 remain pending in this patent application for a total of 35 pending claims. Claims 1-51, 58-59, and 78 have been canceled (without prejudice). Three independent claims (claims 52, 54, and 73) are currently pending and the total number of claims is less than the 51 claims that were filed with the original application. Claims 52 and 54 have been amended herein (without prejudice), while claims 53, 55-57, 60, 61-77, and 79-89 are as previously presented. Applicants submit that no new matter has been introduced by any of the amendments herein, and that the current claims are fully supported by the original disclosure. Specifically, support for the claim amendments can be found in the original disclosure, including in the originally filed claims, for example. Additional support can be found in FIG. 20 and paragraphs 0001, 0007, 0015, 0043-0048, 0193-0195 and 0203 (of the published patent application, US 2007/0210186). Support may be found in other portions of the original disclosure as well.

In the Office Action, the Patent Office objected to the drawings alleging that the drawings do not show a "working nozzle outer surface" and a "working nozzle inner surface" as recited in some of the currently pending claims. Applicants have amended Figure 20 and the specification to provide a reference number for the "working nozzle outer surface" and the "working nozzle inner surface" previously illustrated. Accordingly, reconsideration and withdrawal of this objection in light of these

amendments is requested. Additionally, the Patent Office rejected claims 58-59, 61-62, and 78 under 35 U.S.C. 103, citing various reasons. Without consenting to these rejections, Applicants have canceled (without prejudice) all of these claims, rendering these rejections moot.

The Patent Office also rejected claim 52 under 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Patent Office asserts that the recitations of a "working nozzle outer surface" and a "working nozzle inner surface" in claim 52 are generally confusing such that claim 52 is indefinite as best understood.

The Manual of Patent Examining Procedure provides that the "meaning of words used in a claim is not construed in a "lexicographic vacuum, but in the context of the specification and drawings." MPEP 2111.01 (quoting *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999)). Applicants submit that the meaning of "working nozzle outer surface" and "working nozzle inner surface" would have been clear to a person having ordinary skill in the art from the claim language and disclosure. In addition, without consenting to this rejection, Applicants have amended (without prejudice) Figure 20 and the specification to provide reference numbers 35 and 33 for "working nozzle outer surface" and "working nozzle inner surface" as distinctly recited in claim 52. Reconsideration in light of these remarks and amendments is requested.

The Patent Office also rejected claims 52-65, 67-70, 72-83, 84-87, and 89 under 35 U.S.C. 103, citing US Patent 5,779,159 (Williams) alone or in combination with US Patent 1,289,812 (Kinney). Without consenting to these rejections, Applicants have amended (without prejudice) claims 52 and 54. Applicants submit that, at least as amended, the current claims are patentable over Williams and Kinney because these two references are not properly combinable, and even if combined, Williams and Pennamen do not teach or suggest all of the limitations of any of the pending claims.

Applicants submit that no motivation existed at the time of the invention to combine the asserted documents or to have modified them to arrive at the particular invention that is currently claimed, absent the use of impermissible hindsight from

Applicant's disclosure. Moreover, Applicants submit that the cited documents teach away from the present invention. For example, Williams concerns a fire fighting nozzle that mixes an emulsifying agent and water and sprays that mixture into the air to make foam (Williams, at title, abstract, col. 3, lines 7-15). Kinney concerns oil and hydrocarbon burners that eject a fine spray of oil into a furnace without the presence of pressure within the burner reservoir or tank (Kinney, at col. 1, lines 8-22). Applicants submit that there would be no motivation to combine Williams, which is directed toward suppressing combustion with foam, with Kinney, which is directed toward creating combustion with a fuel. Nor would there have been any motivation to combine either of these references with any other reference, to arrive at the present invention. A person of skill in the art concerned with creating a better system for suppressing combustion, who happened to read Williams or Kinney, would have had no motivation from the reference itself to use any of its teachings, or to try to combine it with another document to come up with a particular apparatus for generating a mist of the present invention.

In addition, even if these two references could be combined, Williams and Kinney do not teach or suggest all of the limitations of any of the pending claims. Specifically, neither Williams nor Kinney teach or suggest:

“a means for generating a mist substantially of a desired droplet size;” or

“the at least one of the plurality of interior walls being continuously tapered outwardly,” and “the plenum adjacent to the transport fluid inlet being of different cross-sectional area than the transport fluid inlet at every point along the length of the plenum adjacent to the transport fluid inlet,” and “the working nozzle being coincident the transport nozzle so that a working fluid communicated to and exiting the working nozzle and the transport fluid communicated to and exiting the transport nozzle contact for the first time and mix”

as recited in claim 52. In addition, Applicants submit that neither Williams nor Kinney teach or suggest a:

“a means for suppressing combustion with a mist;” or

“wherein the first fluid passage and second fluid passage are separate before the first fluid outlet and the second fluid outlet.”

as recited in claim 54. Furthermore, Applicants submit that neither Williams nor Kinney teach or suggest a:

“first fluid passage comprising a first annular portion concentric with the apparatus axis, the first annular portion having a first outer surface facing inward toward the apparatus axis and a first inner surface facing outward away from the apparatus axis; wherein at least part of the first outer surface converges toward the apparatus axis in a direction toward the outlet end,” and

“the second fluid passage comprising a second annular portion concentric with the apparatus axis, the second annular portion having a second outer surface facing inward toward the apparatus axis and a second inner surface facing outward away from the apparatus axis; wherein at least part of the second outer surface diverges away from the apparatus axis in a direction toward the outlet end; and wherein at least part of the second inner surface diverges away from the apparatus axis in a direction toward the outlet end; and wherein the second fluid outlet is located between the first fluid outlet and the apparatus axis.”

as recited in claim 73. Applicants submit that these limitations, especially in combination with the other limitations in each of these independent claims, are not found in the cited references. For example, in Williams, the provided nozzle is directed toward mixing a primary fire fighting liquid such as water and/or a premixed water with a foam fire fighting liquid or another fire fighting liquid which is sprayed into the air to make a foam (Williams, at col. 1, lines 49-56). While Williams may provide for an outer sleeve to regulate the flow of the nozzle between a straight stream pattern or a fog pattern (Williams, at col. 3, lines 16-25, col. 6, lines 40-42), the foam-making technology of regulating the discharge from a nozzle that is described in Williams could not possibly teach or suggest the means for generating a mist, let alone the “means for generating a mist substantially of a desired droplet size,” of claim 52. Meanwhile, in Kinney, the provided nozzle ejects oil broken up into a fine spray and forces the oil into a furnace of a burner (Kinney, at col. 1, lines 8-22). Although Kinney may provide for generating a

mist, it does so as a means of controlling the feed of fuel to a burner (Kinney, at col. 2, lines 33-35) and not as “a means for suppressing combustion with a mist” as recited in claim 54 for example.

Moreover, Williams neither teaches nor suggests the combination of each of the claim limitations of claims 52, 54, and 73. Specifically, in regard to claim 52, Williams fails to teach or suggest an apparatus for generating a mist substantially of a desired droplet size at all, let alone the recited combination of “the at least one of the plurality of interior walls being continuously tapered outwardly,” and “the plenum adjacent to the transport fluid inlet being of different cross-sectional area than the transport fluid inlet at every point along the length of the plenum adjacent to the transport fluid inlet,” and “the working nozzle being coincident the transport nozzle so that a working fluid communicated to and exiting the working nozzle and the transport fluid communicated to and exiting the transport nozzle contact for the first time and mix.” In regard to claim 54, Williams fails to teach or suggest an apparatus for generating a mist to suppress combustion with the recited limitation that “the first fluid passage and second fluid passage are separate before the first fluid outlet and the second fluid outlet.” Finally, in regard to claim 73, Williams fails to teach or suggest an apparatus for generating a mist combining a

“first fluid passage comprising a first annular portion concentric with the apparatus axis, the first annular portion having a first outer surface facing inward toward the apparatus axis and a first inner surface facing outward away from the apparatus axis; wherein at least part of the first outer surface converges toward the apparatus axis in a direction toward the outlet end,” (emphasis added), and a “second fluid passage comprising a second annular portion concentric with the apparatus axis.”

Meanwhile, Kinney, whether taken alone or in combination with Williams, does not rectify the deficiencies of Williams regarding the teaching or suggestion of all the claim elements of the instant claims 52, 54, and 73. For example, in regard to claim 52, Kinney may provide for generating a mist but it does not teach or suggest that mists composed “substantially of a desired droplet size” would provide any advantages nor

does it teach or suggest anything at all regarding droplet size. Likewise, Kinney does not teach or suggest the recitations of "at least one of the plurality of interior walls being continuously tapered outwardly," and a "plenum adjacent to the transport fluid inlet." In regard to claim 54, Kinney may provide for generating a mist, but does nothing to teach or suggest a mist "for suppressing combustion." Finally, in regard to claim 73, Kinney does not teach a "second fluid passage comprising a second annular portion concentric with the apparatus axis." (emphasis added).

Further, Applicants submit that the dependent claims are also patentable over the cited references because the dependent claims depend upon claims that are patentable. Further still, the dependent claims may have other limitations that are not taught or suggested by the prior art of record, and may be patentable for those reasons as well. Allowance of both independent and dependent claims is requested.

The Patent Office also rejected claims 66, 71, 83, and 88 under 35 U.S.C. 103, citing US Patent 5,779,159 (Williams) alone or in combination with US Patent 1,289,812 (Kinney) and US Patent 5,810,252 (Pennamen). Applicants submit that the cited documents do not render obvious the current claims because the references are not properly combinable, and even if combined, the cited documents do not teach or suggest the currently pending claims, as amended.

Applicants submit that the Patent Office has not established a prima facie case of obviousness, because it has not identified a motivation to combine the asserted documents or to have modified them to arrive at the particular invention that is currently claimed. For example, Pennamen concerns atomizing petroleum distillate residue for purposes of combustion (abstract, col. 1, lines 12-15). Channel shapes are identified as circular or ovular having major/minor diameter (chord) ratios of 1 to 4 and more preferably 1.0 to 1.5. (Pennamen, at col. 2, lines 61-63). In regard to claims 66 and 83, although Pennamen provides preferable chord geometries for the ovular channels of the technology it concerns, Pennamen neither provides exit area to throat area ratios nor does it even mention variations in subsonic and supersonic flow. Meanwhile, in regard to all four of these rejected claims, Pennamen, like Kinney, is directed toward atomizing fuel for combustion and therefore teaches away from claim 54, for example, which is

directed toward generating mist to suppress combustion. A person of skill in the art concerned with creating a better system to generate a mist for fire suppression, who happened to read Pennamen, would have had no motivation from Pennamen to use any of its teachings, or to try to combine it with another document to come up with the present invention.

In addition, even if these three references could be combined, Williams, Kinney, and Pennamen do not teach or suggest all of the limitations of any of the pending claims. Specifically, neither Williams nor Kinney teach or suggest all the limitations of claims 66, 71, 83, and 88 for at least those same reasons as are provided for claims 52, 54, and 73 above. Meanwhile, Pennamen, which the Patent Office only cited for the premise that a transport nozzle having exit area to throat area ratio of 1.75 to 15 and a working fluid of water are known in the art, fails to rectify the deficiencies of Williams and Kinney with respect to the instant claims. Therefore, allowance of all the claims pending is requested.

Applicants submit that all of the pending claims are in a form suitable for allowance and request that Examiner Cernoch proceed to allow a patent to issue with all of the pending claims. Should the Examiner have any questions or concerns about this patent application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

Date: 6/22/2010

By Stephen Benyi
Stephen K. Benyi, U.S. Reg. No. 64,966
Bryan Cave LLP
Two North Central Avenue, Suite 2200
Phoenix, AZ 85004-4406
stephen.benyi@bryancave.com
Direct: 602-364-7029